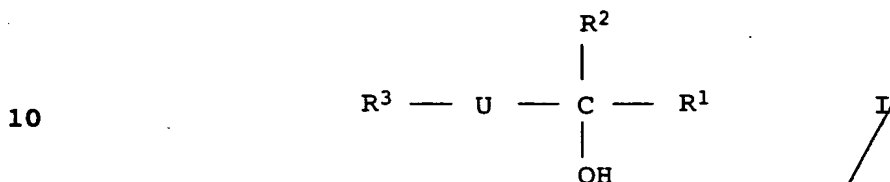
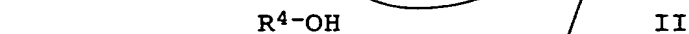


We claim:

1. A process for the preparation of a compound of the general
5 formula I



15 where R^1 , R^2 , R^3 are hydrogen, C_1 - to C_{20} -alkyl, C_2 - to C_{20} -alkenyl, C_2 - to C_{20} -alkynyl, C_3 - to C_{12} -cycloalkyl, C_4 - to C_{20} -cycloalkyl-alkyl, C_1 - to C_{20} -hydroxyalkyl, or aryl or C_7 - to C_{20} -arylalkyl which is unsubstituted or substituted by C_1 - to C_8 -alkyl, C_1 - to C_8 -alkoxy, halogen, C_1 - to C_4 -haloalkyl, C_1 - to C_4 -haloalkoxy, phenyl, phenoxy, halophenyl,
20 halophenoxy, carboxyl, C_2 - to C_8 -alkoxycarbonyl or cyano, or R^1 and R^2 or R^3 together are a C_2 - to C_9 -alkandiyl unit which is unsubstituted, monosubstituted or disubstituted by C_1 - to C_8 -alkyl, C_1 - to C_8 -alkoxy and/or halogen and in which one or two methyl groups may also be replaced by a $(\text{CH}=\text{CH})$ unit and
25 R^3 is additionally an acetylated carbonyl group in which the alkoxy groups are derived from an alcohol of the general formula II



where R^4 is C_1 - to C_6 -alkyl, and

U is an acetylated carbonyl group in which the alkoxy groups are derived from an alcohol of the general formula II, or
35 is a compound of the general formula III



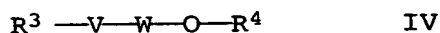
40 where R^1 is as defined under the formula I, and R^3 is exclusively aryl which is unsubstituted or substituted by C_1 - to C_8 -alkyl, C_1 - to C_8 -alkoxy, halogen, C_1 - to C_4 -haloalkyl, C_1 - to C_4 -haloalkoxy, phenyl, phenoxy, halophenyl, halophenoxy, carboxyl, C_2 - to C_8 -alkoxycarbonyl or cyano,

45 V is a carbonyl group or is as defined for U under the formula I, and

W is as defined for V, with the proviso that one of the groups V and W is a carbonyl group and the other is an acetylated carbonyl group,

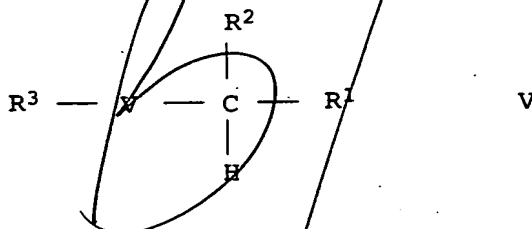
or

a compound of the general formula IV



where R^4 is as defined under the formula II, V and W are as defined under the formula II, and R^3 is as defined under the formula III,

by subjecting a compound of the general formula V



where V, R^1 , R^2 and R^3 are as defined under the formula I or III, with the proviso that

- in the case where a compound of the formula III is desired, use is only made of a compound Va in which

R^1 is exclusively hydrogen and

R^3 is exclusively aryl which is unsubstituted or substituted by C_1 - to C_8 -alkyl, C_1 - to C_8 -alkoxy, halogen, C_1 - to C_4 -haloalkyl, C_1 - to C_4 -haloalkoxy, phenyl, phenoxy, halophenyl, halophenoxy, carboxyl, C_2 - to C_8 -alkoxycarbonyl or cyano, and

- in the case where a compound of the formula IV is desired, use is only made of a compound Vb in which

R^1 and R^2 are exclusively hydrogen,

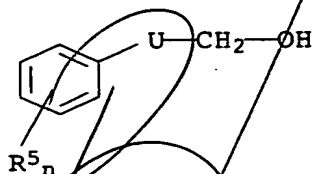
R^3 is exclusively aryl which is unsubstituted or substituted by C_1 - to C_8 -alkyl, C_1 - to C_8 -alkoxy, halogen, C_1 - to C_4 -haloalkyl, C_1 - to C_4 -haloalkoxy,

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phenyl, phenoxy, halophenyl, halophenoxy, carboxyl,
C₂- to C₈-alkoxycarbonyl or cyano,

to an electrochemical reaction with an alcohol of the general
formula II in the presence of an auxiliary electrolyte and
catalytic amounts of a metal salt (S) derived from a metal
from the 1st, 2nd, 6th or 8th sub-group or from lead, tin or
rhenium.

2. A process as claimed in claim 1 for the preparation of a
compound of the general formula Ia

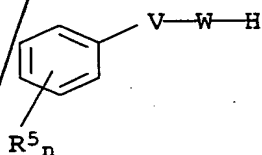


where U is as defined under the formula I,

n is 0, 1, 2 or 3, and

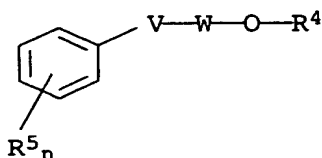
R⁵ is C₁- to C₈-alkyl, C₁- to C₈-alkoxy, halogen, C₁- to
C₄-haloalkyl, C₁- to C₄-haloalkoxy, phenyl, phenoxy,
halophenyl, halophenoxy, carboxyl, C₂- to
C₈-alkoxycarbonyl or cyano,

or of the general formula IIIa

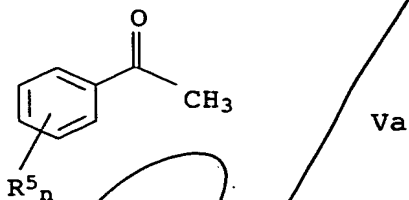


where n, V, W and R⁵ are as defined under the formula Ia or
III,

or of the general formula IVa



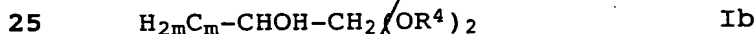
where n, V, W, R⁴ and R⁵ are as defined under the formula Ia or IIIa, by employing, as starting compound of the general formula V, a compound of the general formula Va,



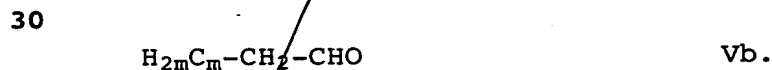
where n and R⁵ are as defined under the formula Ia.

3. A process as claimed in claim 2, where the compound of the general formula Ia is 2-phenyl-2,2-dimethoxyethanol, the compound of the general formula IIIa is 2-phenyl-2,2-dimethoxyacetaldehyde or 2-phenylglyoxal dimethyl acetal, the compound of the general formula IVa is phenylglyoxylic acid methyl orthoester, and the compound of the general formula Va is acetophenone.

4. A process as claimed in claim 1, where the compound of the general formula I is a compound of the general formula Ib



where m is a number from 1 to 10, and R⁴ is as defined under the formula II, and the compound of the general formula V is a compound of the general formula Vb



5. A process as claimed in any one of claims 1 to 4, where the compound of the formula I is 2,2,3,3-tetramethoxypropanol, and the starting compound employed is methylglyoxal dimethyl acetal.

6. A process as claimed in any one of claims 1 to 5, where the anions of the metal salt (S) are derived from mineral acids.

7. A process as claimed in any one of claims 1 to 6, where the anions of the metal salt (S) are phosphate, sulfate, nitrate, perchlorate or halide.

Sub A1

8. A process as claimed in any one of claims 1 to 7, where the cations of the metal salt (S) are iron, nickel, platinum, palladium, cobalt, zinc, silver or copper.
9. A process as claimed in any one of claims 1 to 8, where the electrolysis liquid contains from 1 to 1000 ppm by weight of metal ions of the metal salt (S), based on the total amount of electrolysis liquid.
10. A process as claimed in any one of claims 1 to 9, where the electrolysis liquid contains a halogen-containing auxiliary electrolyte.
11. A process as claimed in any one of claims 1 to 10, where the electrolysis liquid essentially consists of
- a starting compound of the general formula V
 - an alcohol of the general formula II
 - a halogen-containing auxiliary electrolyte
 - catalytic amounts of the metal salt (S)
 - possibly the desired products of the general formulae I, III and IV
 - possibly other by-products of electrolysis which are derived from the compounds of the general formulae I, II, III, IV and V, and
 - if desired, other conventional co-solvents.
12. A process as claimed in any one of claims 1 to 11, where
- the proportion of the starting compounds and products of the general formulae I, III, IV and V and of the other by-products of electrolysis from the abovementioned compounds is from 1 to 70% by weight,
 - the proportion of the alcohol of the general formula II is from 14.9 to 94.9% by weight,
 - the proportion of auxiliary electrolyte is from 0.1 to 5% by weight, and

based on the electrolysis liquid.

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add
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[illegible]